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**PARTNERS IN
PROJECT GREEN**

A PEARSON ECO-BUSINESS ZONE

Green Economy Webinar Series: **Microplastic Diversion: Sharing Two Pilot Study Successes**

- Audience microphones are muted
- Submit questions at any time via the tool bar (questions only visible to organizer)
- Recording, slides, and additional info will be shared after the webinar
- Join our networking session after the panel – computer audio only, Google Chrome browser recommended

partnersinprojectgreen.com

A program of:



Webinar Agenda

1. Introduction

Eric Meliton, Program Manager, PPG

2. Plastics Pilot with Industrial Manufacturers

Joe Burn, Stormwater Solutions Specialist, Enviropod

3. Great Lakes Plastic Clean Up Initiative

Mark Fisher, Chief Executive Officer, Council of the Great Lakes Region

4. Q&A

5. Networking Rooms

A recording of the webinar will be made available to attendees

Partners in Project Green and TRCA Program Updates



Augmenting our programs to adapt to COVID-19

At Home with Nature: TRCA e-Learning

Fun e-Learning videos, activities, and resources that will help families deepen their understanding and appreciation of nature, ecology, and cultural heritage.



<https://trca.ca/learning/nature-elearning/>

Green Economy Webinar Series

Partners in Project Green's free monthly webinar series highlighting important issues and ideas in sustainable business.

Webinars so far:

- Getting to Zero Plastic Waste
- The Business Case for Natural Infrastructure
- Sustainability Reporting: Escaping Acronyms and Rear-View Mirror Reports
- Building Resiliency into your Sustainability Strategy: Lessons from COVID-19
- **Visit partnersinprojectgreen.com/resource to access recorded webinars**

Upcoming topic:

- Oct 29 - Energy Monitoring Technologies and Resulting Cost Savings

Sign up for our monthly newsletter at
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to stay up to date on our webinars and programs!

Green Economy Webinar Series: Energy Monitoring Technologies

October 29, 2020, 1:00 PM, 3M

Join this webinar to learn how the 3M team went about implementing energy monitoring equipment and software platforms that allow them to ensure they are on track to meet targets and find energy reduction opportunities in real-time across a large portfolio of facilities. Hear about their learnings in trying out different types of technologies, how energy monitoring identifies savings opportunities and what is coming in the future to make energy monitoring easier and more cost-efficient

Register today: <https://partnersinprojectgreen.com/events/>

Sign up for our monthly newsletter at
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to stay up to date on our webinars and programs!

Material Exchange

Facilitating the exchange of material between businesses and non-profit organizations to divert waste from landfill, support local communities, and move towards a circular economy.

SickKids Hospital - Furniture

New PPG member SickKids Hospital had 2 rooms full of various furniture that they had no use for.

PPG reached out to our networks and was able to secure exchanges with 4 different organizations across the GTA.

Items exchanged totaled 610 kg in weight and included school desks, filing cabinets, chairs, and tables.

If you have items that need new homes, contact us today.



Contact
connie.choy@trca.ca

Natural Infrastructure and Climate Resiliency



This program helps property managers, commercial developers, industrial manufacturers, institutional facilities, and business owners understand their climate risks and identify opportunities to mitigate those risks, and provides support to take action and become more resilient.



For more information, visit:

<https://partnersinprojectgreen.com/natural-infrastructure/>

Contact Eric.Meliton@trca.ca for details



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Joe Burn

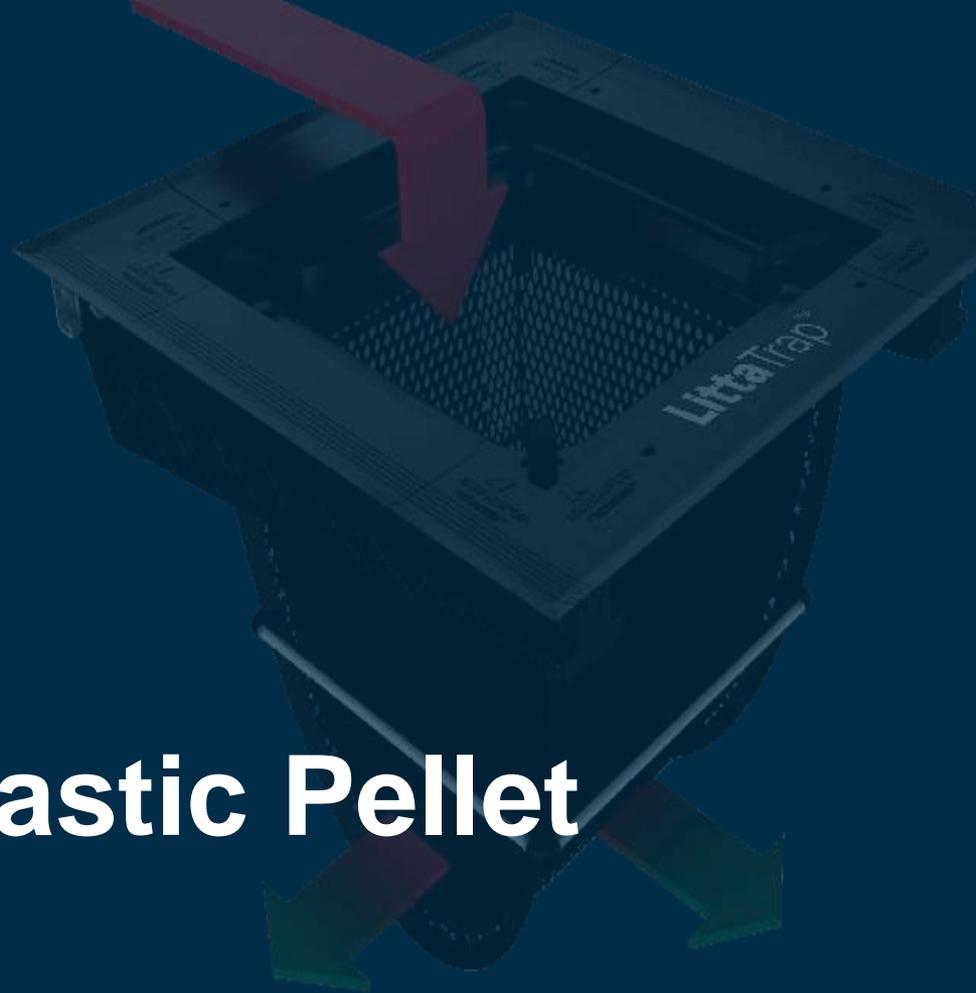
Stormwater Solutions Specialist, Enviropod



Joe Burn is the Canadian representative for stormwater solution specialists Enviropod and their innovative marine plastic solution, the LittaTrap. After the Canadian government outlined their commitment to preventing plastics from entering our environment in 2018 through the Ocean Plastics Charter, Joe and Enviropod made the trip from New Zealand to help raise awareness to marine plastic and their solution.

Joe has always had a passion for environmental issues, studying Environmental Communication before joining Enviropod in 2018. He has thoroughly enjoyed his time in Canada to date with the exception of the much colder winter months.

The LittaTrap: Plastic Pellet Diversion



ENVIROPOD™

About Enviropod

- Incorporated 1996 in New Zealand
- Part of Stormwater360 Group
- Australasia's leading catchbasin insert company
- Over 50 years combined experience in stormwater management
- Over 50,000 installations worldwide
- Established in Canada



Our Marine Plastic Solution

The LittaTrap sits inside a stormwater drain and when it rains, it catches plastic and rubbish before reaching our streams, rivers and oceans



Applications & Installation



Stop plastic leaving your site

The LittaTrap is designed to capture all particles larger than 5mm or smaller with optional liner.



Reduce your costs

Installing a LittaTrap can reduce the risk of stormwater infrastructure blocking further downstream or act as pretreatment for other treatment devices.



Minimal maintenance costs

The LittaTrap is able to be maintained by hand, reducing expensive maintenance costs.

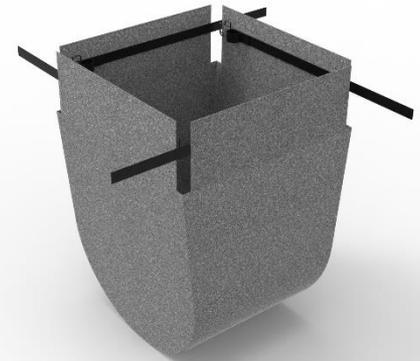


Easy to retrofit

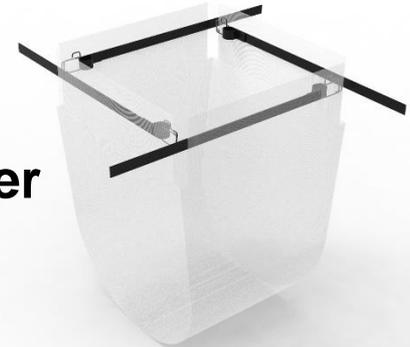
Easily retrofitted into existing catch basin/gullypits.

Liners

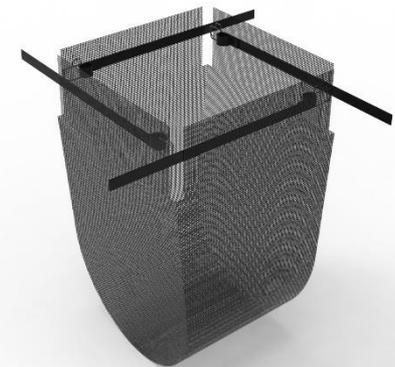
Sediment Liner
Geo-tech style liner



Micro Plastics liner
200-micron liner



Nerdle Liner
1000-micron liner

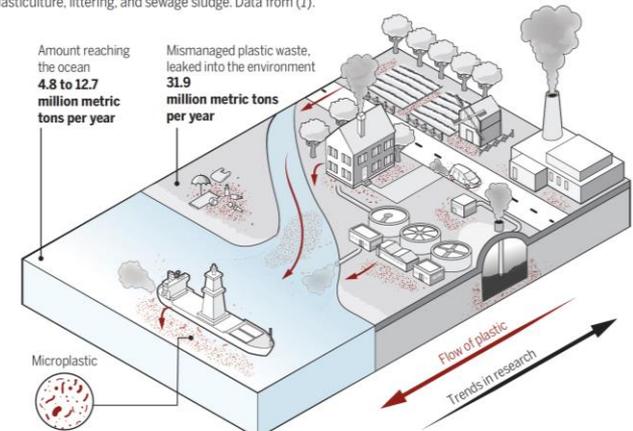


Plastic Pellets and the Problem

- Resin plastic pellets are a microplastic ranging in size from two to five millimeters
- The pellets, known as “nurdles,” are made from plastic polymers, and absorb toxic chemicals detrimental to marine life
- Approximately 60 billion pounds (27 million tonnes) of nurdles are manufactured annually in the United States.
- It is estimated 250,000 tonnes enter the ocean annually
- Microplastics are known to effect over 800 marine species

Microplastics everywhere

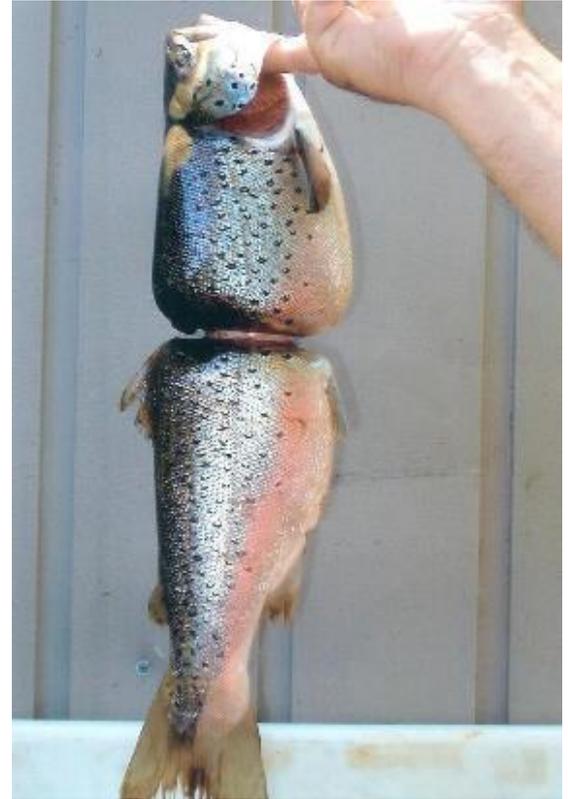
High amounts of microplastics have been found not just in the sea and on beaches, but also in rivers and soils around the world, demonstrating how pervasive this modern pollution is. Sources include leakage from landfills, plasticulture, littering, and sewage sludge. Data from (1).



As you Sow (n.d), Calovini (n.d.), Trevino & Undark (2019), Gottlieb (2012) & Rochman (2018)

Environmental Impacts

- When birds eat plastics, it can reduce their intake of nutrients, decrease reproduction, causing poisoning and internal and external wounds, and block their digestive tracts
- Adverse effects across various marine species
- People often become sick when they interact with contaminated seawater or fish
- Plastic pellets are often mistaken as food by fish and birds



Gregory (2009), Botterel et al., (2009), Cole et al., (2013), Webb (2017), Sussarellu et al., (2016), Our Marin Environment (2019) & Operation Clean Sweep (2020)

Plastic Pellets across Canada

- NGO Surfrider Foundation have reported multiple significant pellet spills in B.C. this year
- “A lot of these plastic pellets end up draining into the [Fraser] river, being consumed by fish, birds, and eventually the humans that eat the fish.” Kristina Lee, vice-chair of Surfrider Vancouver,
- Surfrider Foundation conducted a three-year study, which concluded multiple areas across the Fraser River and Salish Sea with pellet pollution
- Multiple spills have been reported at Lake Superior for the past 8 years, with Geese mistaking the pellets for seeds



Boynton (2020), Hadley (2016) & Little (2019)

Why do we need pellets?

- Milk containers
- Bottles for cleaning supplies
- Bottles for personal care items
- Fuel tanks
- Linings for truck beds
- Toys
- Piping
- Drums and buckets
- Car upholstery
- Home furnishing upholstery
- Plastic covers
- Grocery bags



Calovini (n.d.)

How do pellets enter waterways?

- The small nature of plastic pellets causes many problems – hard to quantify the problem due to their microscopic size, equally hard to control its pollution
- Without source control, pellets end up in our waterways with difficulty identifying where they originated from
- Manufacturers and transport companies try to mitigate plastic pellet spills, but human error and weather events mean spills are inevitable
- Enviropod advocates for source control, identifying stormwater drains as the main entry point for plastic pellets



PDI Bulk

- PDI Bulk are a transloading company and member of Operation Clean Sweep
- Despite staff efforts to maintain pollution, human error is inevitable and PDI identified a problem they were having with plastic pellet pollution
- Set out to do something about it, had LittaTraps installed across their sites and saw significant plastic pellet capture



Hood Packaging

- Hood Packaging, plastic manufacturer in Calgary monitored data from a single LittaTrap over a three-month period
- A total of 722 pieces of litter were caught with 651 being resin plastic pellets
- This equates to 2,500 plastic pellets from a single catch basin per year

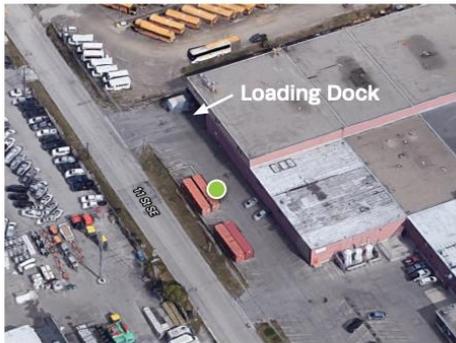


Figure 1 The LittaTrap Location is marked in green. The nearby parking lots and shipping dock are significant sources of litter



Figure 2 shows the loading dock as well as the visitor and employee parking area near the catch pit



Figure 3 shows the litter in and around the catchpit prior to the LittaTrap installation



Figure 4 shows the litter from one of the collections sorted into individual categories (not to scale)

Medical Plastics, NZ

- It was recommended that Medical Plastics Ltd, install a LittaTrap in a stormwater drain in their carpark to monitor the effectiveness of its performance in preventing plastic pellet loss.
- Medical Plastics is a clean site; however, with all manufacturing sites, there can be a chance of accidental spills. At this site, the waste and recycling bins are in the same area as the loading and unloading zone, all which flow to one stormwater drain where the LittaTrap was installed.
- In the 12 months of sampling, 4.853kg of material was retained in a single LittaTrap. This equals approximately 220,000 pellets captured and retained by one LittaTrap.



Operation Clean Sweep and the CIAC



Operation Clean Sweep

- Operation Clean Sweep (OCS) is a global pledge to work towards zero pellet, flake, and powder loss
- The campaign's goal is to help every plastic resin handling operation implement good housekeeping and pellet, flake, and powder containment practices to work towards achieving zero pellet, flake, and powder loss.
- OCS is being conducted in thousands of plants around the world, all adding to the effort to protect the environment

Take the OCS Pledge



To demonstrate your commitment to a clean environment, please complete the “Pledge to Prevent Resin Pellet, Flake, and Powder Loss”. Completing this pledge will qualify your company's name to be added (unless otherwise specified) to the list of our Program Partners on the Operation Clean Sweep website.

Your company will receive a certificate suitable for display that affirms your commitment to being an Operation Clean Sweep partner.

[Become a partner](#) 

Operation Clean Sweep (2020)

Chemistry Industry Association of Canada (CIAC)

- CIAC previously CPIA is the Canadian representative of OCS
- It is a condition of membership that companies pledge to support Operation OCS and measures in place by 2022
- This extends to resin producers, transporters, bulk terminal operators and plastics processors, ensuring they take the necessary steps to improve contaminant practices towards achieving zero pellet, flake and power loss
- CIAC are currently piloting LittaTrap technology at a member site across five catch basins, with data collection done by the University of Toronto
- It is worth noting that not all plastic manufacturers are signed up to CIAC, so this does not solve the problem



CIAC (2020)

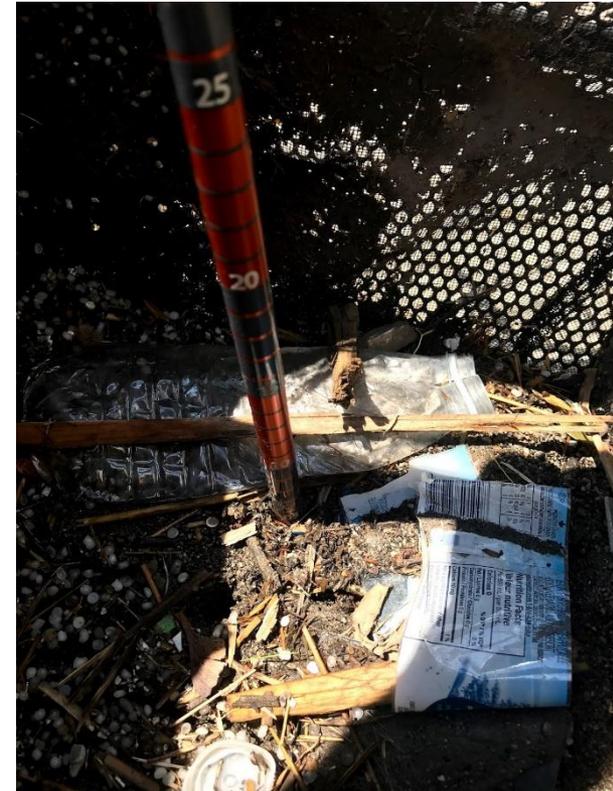
CIAC Pilot

- Starting in June 2020, the trial has faced many setbacks as a result of the COVID-19 situation, which has prevented us from getting tangible data to date
- Despite this, all pollutants are successfully being collected and the trial will run through until late 2021
- Three site collections done to date have seen significant plastic pellet capture that would have otherwise ended up in the Great Lakes



Pollutant Capture Methodology and Analysis

- Enviropod visits the site on a monthly basis and collects the pollutants
- The pollutants are assessed, measured and 'bagged and tagged' with the date and their corresponding number so they can be further analysed by the University of Toronto
- Enviropod collections to date have shown that despite the site being small and environmentally conscious, a significant quantity of pellets have been recovered
- This along with our previous case studies has shown it is a problem spanning both manufacturing and transporting sites



Conclusions

- Resin plastic pellets play a significant role in developing many of the products currently essential to day-to-day life
- A lack of regulation and understanding of the pollution has led to widespread pollution of plastic pellets
- With 80% of marine plastic coming from land, storm drains are the most effective way to mitigate plastic pellet pollution
- Organizations such as CIAC and OCS are continuing to enforce regulation
- Ongoing trials with research partners will continue to build on the knowledge we have



Thanks for Listening!

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Mark Fisher

President and CEO, Council of the Great Lakes Region



Mark Fisher became the President and CEO of the Council of the Great Lakes Region (CGLR) in 2014.

Prior to joining CGLR, he served as a foreign policy advisor in the Privy Council Office, which supports the Prime Minister of Canada and the federal Cabinet, where he focused on advancing Canada's interests in North America and the Asia-Pacific region.

Mark has extensive experience advising senior decision-makers on a range of socioeconomic and environmental issues facing government, business, and the non-profit sector.

Mark is also a recipient of the Royal Canadian Legion Cadel Medal of Excellence.



THE GREAT LAKES PLASTIC CLEANUP

greatlakesplasticcleanup.org

PRESENTATION OBJECTIVES

- The purpose of this presentation is four-fold:
 1. Briefly describe the binational Great Lakes economic region and the plastic waste problem in the Great Lakes.
 2. Provide an overview of the Great Lakes Plastic Clean-up project's founding partners and current funders.
 3. Explain the initiative's core activities.
 4. Identify next steps.



THE GREAT LAKES REGION

- The binational Great Lakes economic region spans **eight states and two provinces**.
- Home to **107 million people**, if a country, the region would be the 12th largest country in the world by population.
- With **US\$6.0T** in economic output in 2017, the region would be the 3rd largest national economy in the world.
- **52 million jobs**, or one-third of the combined American and Canadian workforce.
- The Great Lakes, with **21% of the world's and 84% of North America's surface freshwater**, is the largest freshwater system in the world.





PLASTIC WASTE CHALLENGE

- 80% of the region's waste is lost to landfills, including valuable plastic. It's also leaking into the environment. In fact, it is estimated that **22 million pounds of plastic enter the Great Lakes every year**¹, with microplastics reaching levels as high as 1.25 million particles/km² – concentrations on par with what is found in the ocean's garbage patches².
- **Plastic material lost to landfills and the environment is attributed in part to limited material recycling and reuse opportunities** throughout the region. In Michigan, for example, the overall rate of recycling is below 15 percent, with plastic recycling accounting for less than 10 percent of the total. **Public litter also remains a serious concern** across the Great Lakes.
- Studies suggest it could cost **\$400 million annually to clean-up and curtail plastic pollution** (e.g. beach and waterway cleanup, public anti-littering campaigns, storm-water capture devices, advanced recycling infrastructure, etc.).

1. <https://www.sciencedirect.com/science/article/abs/pii/S0025326X1630981X?via%3Dihub>

2. <https://www.frontiersin.org/articles/10.3389/fenvs.2017.00045/full>

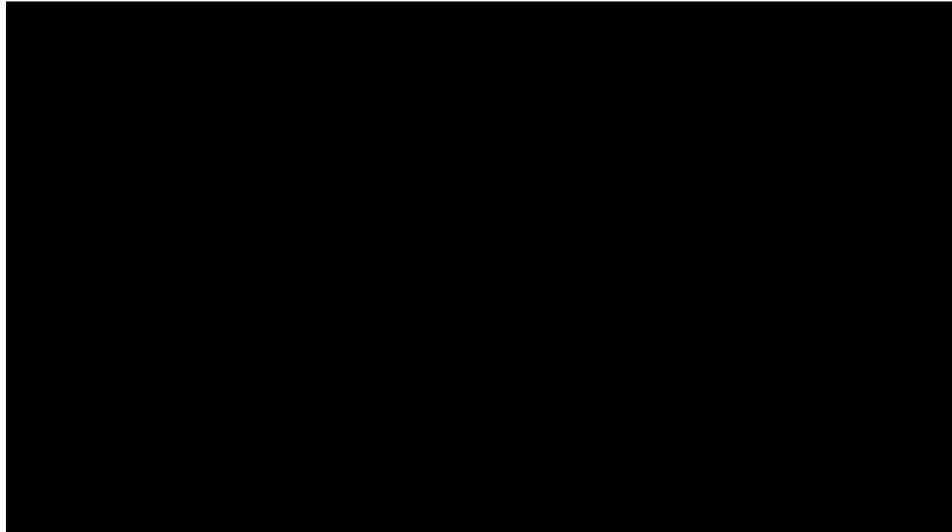
GREAT LAKES PLASTIC CLEAN-UP INITIATIVE LAUNCHED

- **Forging a future without waste and ending waste pollution**, with a focus on plastic, is a monumental task facing the binational Great Lakes economic region and watershed – as well as the rest of the world.
- **Great Lakes Plastic Clean-up initiative officially launched on August 27th** by the Council of the Great Lakes Region, Pollution Probe, Boating Ontario, the University of Toronto Trash Team, and PortsToronto.
- **Largest deployment of Seabin and LittaTrap technology in the world** to quickly remove plastics at marinas from Lake Ontario to Lake Superior and everywhere in between.
- **Great Lakes wide anti-litter campaigns** to remind people of their connection to the environment and the importance of the 3Rs – Reduce, Reuse, Recycle.



SEABIN TECHNOLOGY

- The Seabin is a “trash skimmer” designed to be installed in the water of marinas, yacht clubs, ports - in fact, any water body with a calm surface environment and suitable services available for maintenance.
- The unit acts as a floating garbage bin, skimming the surface of the water by pumping water into the device. The Seabin can intercept floating debris, macro and micro plastics and even microfibres, with an additional filter.



LITTATRAP TECHNOLOGY

- The Enviropod LittaTrap™ is a patented catch basin basket that sits inside the stormwater drain and prevents litter and other debris carried by stormwater from entering the storm drain system.
- The trap's 5mm mesh basket is designed to capture and retain 100% of plastic and other debris. The basket has high hydraulic conductivity - allowing water to pass through it easily - and is both lightweight and structurally robust.



WHERE WE WORK

- The Great Lakes Plastic Cleanup is currently working with 13 marinas throughout the Great Lakes region, which includes the five Great Lakes as well as the waterways between and around them. By the end of the boating season, a total of 25 marinas will be involved!





OUR COLLABORATORS

FOUNDERS



PARTNERS



FUNDERS



Environment and
Climate Change Canada
Environnement et
Changement climatique Canada



WANT TO JOIN THE EFFORT?

- To find out how you can get involved, don't hesitate to get in touch! Email us at info@greatlakesplasticcleanup.org.
- You can also learn more by visiting www.greatlakesplasticcleanup.org/.

- **QUESTIONS?**

**MARK FISHER
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COUNCIL OF THE GREAT LAKES REGION**

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Q&A

Networking Segment

Join us in one of the following rooms:

- Networking Room #1 – Stakeholder policy development
 - Hosted by **Connie Choy**, PPG and **Mark Fisher**, CGLR
- Networking Room #2 – ICI manufacturing pilot engagement
 - Hosted by **Eric Meliton**, PPG and **Joe Burn**, Enviropod

Tips for joining Go To Meeting networking rooms:

- Links are in the chat area – please click the link to the room you'd prefer
- The Go To Webinar will remain open during the networking for those who may want to join or switch networking rooms